

## **Claims**

What is claimed is:

1. A method for customizing a user-interface control of an existing application comprising the steps of:
  - 5        recording a procedure description performed by a user in the application user-interface; and
  - installing the user-interface control relating to the procedure description in the existing application.
- 10    2. The method of claim 1, wherein the procedure description comprises at least one user action.
3. The method of claim 2, wherein each user action comprises at least two lower-level user actions.
4. The method of claim 1, wherein the step of recording a procedure description performed by a user in the application user-interface comprises the steps of:
  - 15        transmitting at least one request for application user-interface structure information from a procedure capturer to an operating system; and
  - receiving the application user-interface structure information from the operating system at the procedure capturer.
- 20    5. The method of claim 4, further comprises the step of building a control registry at the procedure capturer based on the user-interface structure information.
6. The method of claim 5, wherein the step of recording a procedure description performed by the user in the application user-interface comprises the steps of:

receiving a notification of a system action at the procedure capturer during a user action within the application interface; and  
updating the control registry of the procedure capturer.

5           7. The method of claim 1, wherein the step of recording a procedure description performed by the user in the application user-interface comprises the step of registering the procedure capturer with the operating system to receive notification of user actions and system actions.

10           8. The method of claim 1, wherein the step of recording a procedure description performed by the user in the application user-interface comprises the steps of:  
receiving notification of user action within the application interface at the procedure capturer;  
determining a result activated by user action at the procedure capturer;  
mapping the activated control into a generic description at the procedure capturer;  
15           adding the generic description to a procedure representation at the procedure capturer;  
determining if there are more user actions; and  
storing the procedure representation in the procedure capturer if there are no more user actions.

20           9. The method of claim 8, wherein the procedure representation is stored incrementally.

10. The method of claim 8, further comprising the step of receiving the procedure description at the control installer.

11. The method of claim 10, further comprising the step of modifying the procedure description at the control installer with details of the installed control.

12. The method of claim 1, wherein the step of installing the control relating to the procedure description in the existing application comprises the steps of:

5        sending a request to an operating system from a control installer to install the control;

          creating and installing the control in the application user-interface through the operating system; and

10        registering a callback at the operating system using a location supplied by the control installer.

13. The method of claim 1, further comprising the step of executing an installed control.

14. The method of claim 13, wherein the step of executing an installed control comprises the steps of:

15        receiving a user action on the installed control at an operating system;  
          invoking a callback function in a command player by the operating system; and  
          retrieving a procedure description at the command player.

15. The method of claim 13, wherein the step of executing an installed control comprises the steps of:

20        transmitting at least one request for application user-interface structure information from a command player to an operating system; and  
          receiving the application user-interface structure information from the operating system at the command player.

16. The method of claim 13, wherein the step of executing an installed control comprises the step of building a control registry at a command player.

17. The method of claim 16, wherein the step of executing an installed control comprises the steps of:

- 5 notifying a command player of a system action;
- updating a control registry at the command player; and
- determining if there are more user actions in a recorded procedure.

18. The method of claim 13, wherein the step of executing an installed control comprises the step of registering with an operating system for a command player to  
10 receive notification of user actions.

19. The method of claim 13, wherein the step of executing an installed control comprises the steps of:

- examining a user action of a procedure at a command player;
- mapping objects in recorded procedure onto corresponding objects in an  
15 application interface;
- sending actions to an operating system from the command player to emulate action in the recorded procedure; and
- determining if there are more user actions in the recorded procedure.

20. The method of claim 1, wherein the step of installing the user-interface  
20 control comprises the step of altering the appearance of at least one existing user interface control.

21. The method of claim 20, wherein the step of altering the appearance of an existing user interface control comprises the steps of:

specifying the altered appearance of the at least one existing user interface control;

and

5 displaying the at least one altered user interface control.

22. The method of claim 21, wherein the at least one altered user interface control is displayed on top of the at least one existing user interface control.

23. The method of claim 21, wherein the at least one altered user interface control is displayed in a new window.

10 24. The method of claim 21, wherein the appearance of the at least one existing user interface control is altered using semi-transparent overlays.

25. The method of claim 21, wherein at least one application window is replaced by at least one new window, and wherein the at least one new window comprises a control corresponding to each control in the at least one application window.

15 26. The method of claim 21, wherein the appearance of the at least one altered user interface control is specified as an image file.

27. The method of claim 21, wherein the appearance of the at least one altered user interface control is specified by a program module that dynamically alters appearance based on a history of user actions.

28. A method for altering the appearance of at least one existing user interface control comprising the steps of:

specifying the altered appearance of the at least one existing user interface control;

and

5 displaying the at least one altered user interface control.

29. Apparatus for customizing a user-interface control of an existing application comprising:

a memory; and

10 at least one processor, coupled to the memory operative to: (i) record a procedure description performed by a user in the application user-interface; and (ii) install the new user-interface control relating to the procedure description in the existing application.

30. The apparatus of claim 29, wherein the operation of recording a procedure description performed by a user in the application user-interface comprises the steps of:

15 transmitting at least one request for application user-interface structure information from a procedure capturer to an operating system; and

receiving the application user-interface structure information from the operating system at the procedure capturer.

31. The apparatus of claim 29, wherein the operation of recording a procedure description performed by the user in the application user-interface comprises the step of  
20 registering the procedure capturer with the operating system to receive notification of user actions and system actions.

32. The apparatus of claim 29, wherein the operation of recording a procedure description performed by the user in the application user-interface comprises the steps of:

receiving notification of user action within the application interface at the procedure capturer;

determining a result activated by user action at the procedure capturer;

mapping the activated control into a generic description at the procedure capturer;

5 adding the generic description to a procedure representation at the procedure capturer;

determining if there are more user actions; and

storing the procedure representation in the procedure capturer if there are no more user actions.

10 33. The apparatus of claim 29, wherein the operation of installing the control relating to the procedure description in the existing application comprises the steps of:

sending a request to an operating system from a control installer to install the control;

15 creating and installing the control in the application user-interface through the operating system; and

registering a callback at the operating system using a location supplied by the control installer.

34. The apparatus of claim 29, wherein the at least one processor is further operative to execute an installed control.

20 35. The apparatus of claim 29, wherein the operation of installing the user-interface control comprises the step of altering the appearance of at least one existing user interface control.

36. An article of manufacture for customizing a user-interface control of an existing application comprising the steps of:

recording a procedure description performed by a user in the application user-interface; and

5 installing the user-interface control relating to the procedure description in the existing application.